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AN ASSESSMENT OF A SPECIAL ENGLISH LANGUAGE TRAINING COURSE FOR IMMIGRANT TRADESMEN

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AN ASSESSMENT OF
A SPECIAL ENGLISH LANGUAGE TRAINING COURSE
FOR IMMIGRANT TRADESMEN

by

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Ontario Department of Labour

May, 1969

Hon. Dalton Bales, Q.C.
Minister

T. M. Eberlee,
Deputy Minister

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INTRODUCTION

In Ontario the failure rate among immigrant tradesmen on the Certificate of Qualification Exams (hereafter referred to as C. of Q. Exams) set by the Ontario Department of Labour has been very high, but little is known about the relative importance of a number of possible factors underlying their poor performance. Does the high failure rate reflect inadequate knowledge of the trades according to Ontario's standards or lack of knowledge of English? On the assumption that the latter was of prime importance the practice of permitting an immigrant tradesman to write his C. of Q. exam with the help of an interpreter has been adopted. However, this has not proved to be an effective solution because when a candidate passed the exam, it was difficult to know whether success was attributable to his own knowledge of the trade or the interpreter's trade knowledge.

In this report an assessment of the results of a pilot project set up to seek answers to some of the above questions is presented. In this project, a group of immigrant tradesmen were given a special English language course prior to writing their C. of Q. exams, and then wrote these exams in English without the aid of an interpreter [1]. Through this

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1. The pilot project was sponsored by the Citizenship Branch, Department of the Provincial Secretary and Citizenship, the International Institute of Metropolitan Toronto, the Canada Department of Manpower and Immigration and the Ontario Department of Labour.

process, it was hoped that the relative importance of the following casual factors could be unravelled:

1) inadequate knowledge of the trade according to Ontario's standards;

2) lack of knowledge of the English language;

3) inadequate knowledge of trade terminology.

The analysis presented in this report attempts to determine the relative importance of these factors by examining the relationships between a number of variables and the failure and pass rates and average marks obtained on the C. of Q. exams after the English language course was completed.

In the first section of the report the pilot project itself is briefly described, and this is followed by a statement of the main findings suggested by the analysis. A description of the demographic characteristics of the immigrant tradesmen involved in the pilot project is presented in the third part of the paper while the general performance on the C. of Q. Exam of these tradesmen are related to several possible explanatory variables in the fourth section. In the next section of the report the relationship between success on the C. of Q. Exam and proficiency in English is examined, and a limited attempt is made

to isolate the importance of the latter factor relative to level of schooling and training with respect to performance on the C. of Q. Exam. In the concluding section of the paper, for those trade groups where the number of observations will permit it, performance on the C. of Q. Exam is broken down by exam section for a more detailed investigation of areas of weakness to disentangle the language and trade knowledge problems.

Brief Description of the Pilot Project

The project, which commenced on July 22, 1968, was set up on a two-stage basis. Training in basic English constituted the first phase of the course. Classes were conducted four nights per week for twelve weeks (a total of 120 hours of instruction). This was followed by the trade terminology part of the course (a total of 80 hours of instruction) which was deisgned to familiarize the student with Canadian trade terms, uses and practices. Upon completion of the second part of the course, the trainees wrote their C. of Q. Exam in English without the assistance of an interpreter.

To qualify for the program the candidate had to be an immigrant tradesman who had been granted a Provisional

Certificate of Qualifications by the Ontario Department of Labour. Candidates who had tried and failed the qualifying examination, at least once, were given priority in recruitment.

Before moving on to the statement of the main findings and the subsequent analytical sections it should be stressed here that the size of the sample and its composition impose a serious constraint on the type of analysis which can be done. In many cases, the number of observations is simply too small for results to be meaningful and reliable. With respect to the data there are a number of gaps that created problems (missing files, incomplete information in files, and no data recorded). As a result, when candidates are grouped according to various criteria the totals are not always identical. However, because there does not appear to be any distinctive pattern to the missing information, it is rather unlikely that the incomplete data has created any bias.

SUMMARY OF CONCLUSIONS

Although there are serious restrictions on drawing definite conclusions from the analysis because of the limited number of observations and gaps in the information on trainees, a number of patterns do emerge that are highly suggestive. While knowledge of English is undoubtedly a problem for immigrant tradesmen, this variable may have been given too much emphasis in recent years as being a key factor underlying their poor performance on the C. of Q. Exam. The argument that a good knowledge of English would considerably reduce the failure rate on the C. of Q. Exam is based on the assumption that the candidate already has an adequate knowledge of the trade. However, the fact that three-quarters of the immigrant tradesmen failed the C. of Q. Exam after taking a special English language training programme suggests that the latter assumption should be seriously questioned.

Further, there are several indications that inadequate trade knowledge may be an equally important factor, relative to knowledge of English, with respect to poor performance on the C. of Q. Exam. For example, if knowledge of English was the fundamental problem one would expect marked

improvement on the C. of Q. Exam as proficiency in English increased; but the analysis did not lend very strong support to this contention. Candidates with a mark under fifty per cent on the English language exam obtained an average mark of 43 per cent on the C. of Q. Exam, while those with a mark between 50 and 74 per cent in English achieved an average mark of 45 per cent on the C. of Q. Exam, an extremely small improvement of two percentage points. On average, only those with a mark of 75 per cent or more on the English exam passed the C. of Q. Exam (the average mark for this group was 62 per cent). These results, especially the last one, were extremely suspicious and raised the question: Is the basic relationship between a candidate's "level of schooling and technical training" and success on the C. of Q. Exam with standing in English acting only as a proxy for this more fundamental factor? Additional probing lent some support to this contention but further research would be required before any definite statement could be made.

The analysis of performance on specific sections of the C. of Q. Exam indicates that, in general, the knowledge of all aspects of the trade among the candidates was quite poor in terms of Ontario's standards. Serious gaps in knowledge of

trade theory and practice revealed by this part of the analysis suggests that language training can solve only part of the problem, and would be a complete solution to the problem only for those candidates who, from the point of view of Ontario's standards, are fully qualified and lack the knowledge of English only.

As well, the analysis reveals that a candidate's working experience is not a good criteria for identifying his qualifications. However, to a large extent this can be explained by the fact that in current practice the documents offered as proof of experience are taken at their face value because the task of evaluating them would be formidable. Actually it appears that the first C. of Q. Exam acts as the effective screening device, whereby a candidate's qualifications can be assessed.

While it appears that a special English language course is not a panacea, it is recommended that such a course does have a legitimate role to play in that it would permit the C. of Q. Exam to be used as an adequate filter. If an immigrant tradesman was permitted to write the C. of Q. Exam without an interpreter only after taking a special English

language training course (or after demonstrating a minimum pre-determined proficiency in English) it would then be possible to analyze performance on the C. of Q. Exam to objectively assess whether the candidate's qualifications meet Ontario Standards. If the candidate fails, it would be possible to pinpoint areas of weakness by examining specific sections of the C. of Q. Exam and counsel the candidate with respect to the type of skill upgrading he requires before taking the C. of Q. Exam a second time. Such a procedure would relieve the Industrial Training Branch of making all kinds of subjective decisions based on documents that cannot be realistically validated and place the onus of proof where it belongs, on the candidate.

BRIEF SUMMARY OF THE CHARACTERISTICS OF THE TRAINEES

For brevity no detailed data are presented in this section. These are included in an Appendix at the end of the report and, for the reader's convenience, the relevant table in the Appendix that contains the data for each characteristic dealt with in this summary is noted.

A total of 205 immigrant tradesmen registered for the special English language training course. Electricians, comprising 47.3 per cent of all trainees, constituted the largest trade group in the project (see Table A). Next in size were Motor Vehicle Repairmen (M.V.R.) with 55 candidates (26.9 per cent of all trainees). Plumbers, Steamfitters and Sheet Metal workers were represented respectively by 30, 16 and 7 candidates[2].

Out of the total number of 205 candidates in the project, 133 trainees wrote their C. of Q. Examination which

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2. Because of the suspicion of subjective evaluation of some exam results, a group of 10 electricians was excluded from the analysis. Also, a group of hairdressers, according to the registration list, numbering 10 persons, are not examined here. The data on this group were extremely poor.

gave an overall completion rate for the project of 64.9 per cent. Seventy-two candidates (35.1 per cent of the total) were classified as drop-outs[3].

Candidates in the project came from 25 different countries (see Table B). The largest ethnic groups were Italians with a total number of 76 trainees (37 per cent of all trainees) and Greeks with 43 candidates (21 per cent).

The average age for all trainees was 29.7 years and varied from 28.6 years for motor vehicle repairmen to 32.4 years for steamfitters. Also, the average age for different ethnic groups did not differ significantly from that for the trade groups (see Table C). While the age of individual candidates ranged from 20 to 58 years of age, the majority, over 60 per cent, were 20 to 29 years of age.

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3. The term 'drop-outs' has a specific meaning here. It refers to all candidates who have not taken the C. of Q. Exam; but it does not necessarily mean that they have not completed the English language training programme. A number of candidates attended classes quite regularly but did not appear for the final exam. At the same time, since the attitude towards attendance was very liberal, there were candidates with very poor attendance records and drop-outs from the course who took the exam. To make allowances for all these cases would mean establishing several groups of drop-outs. This kind of detailed breakdown would suffer because of the resulting small numbers of candidates in each category.

Ninety candidates, 43.9 per cent of the total, listed for the project were married (see Table D). Single candidates comprised 34.6 per cent of the total[4]. Unfortunately, no data were available on the married status of 44 candidates (21.5 per cent of the total number of trainees).

Among candidates with dependents (91 persons and 44.3 per cent of the total), the largest group had one dependent (31 persons). Twenty-five candidates had 2 dependents (27 per cent of the group) and only 14 candidates had more than 4 dependents (see Table E).

While the regulations in Ontario state that a minimum level of education of Grade 10 is required before a candidate can enter an apprenticeship programme, only 40 candidates had completed Grade 10 (about 20 per cent of the total). There were 95 candidates (47 per cent of the total) with Grade 8 or less. The majority of candidates had records of taking apprenticeship or some type of technical training in addition to their academic schooling (see Table F).

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4. The category 'single' also includes divorced and separated persons without dependents.

The candidates' length of residence in Canada ranged from a few weeks to several years. However, it is interesting to note that the majority of them were newcomers. Seventy-five per cent of all candidates in the project had been in Canada for four years or less, while 71 (34.6 per cent of all trainees) had been in the country for less than twelve months.

OVERALL PERFORMANCE ON POST-TRAINING C. OF Q. EXAMINATION AND RELATIONSHIP TO SELECTED VARIABLES

Performance on the C. of Q. Exam by Trade Groups

While the overall failure rate on the C. of Q. Exam was 75.2 per cent, there was considerable variation between trade groups. For example, the failure rate ranged between a low of 33.3 per cent for sheet metal workers (only 6 candidates) to a high of 95.2 per cent for plumbers (see Table 1). However, considering the absolute number of candidates in each group, electricians with a failure rate of 65.6 per cent had the best performance on the C. of Q. Exam.

The average marks obtained on the C. of Q. Exam by trade group are also shown in Table 1. These generally reinforce the impressions obtained from the failure rates. On average, every group was below the 60 per cent required to pass the exam. Sheet Metal workers with 57 per cent were quite close to the pass mark. Electricians and steamfitters were next with unimpressive averages of 51.0 and 50.8 per cent respectively, while plumbers obtained an average mark of 40 per cent and M.V.R. were at the bottom of the scale with an average mark of 33 per cent.

Also, a breakdown of candidates into Passed and Failed groups reveals essentially the same pattern. All the candidates in the 'Passed' group had an average only slightly above the 60 per cent pass mark on the C. of Q. exam, and the average marks for candidates who failed the exam were extremely poor.

TABLE 1

Average Marks and Failure Rates on the Exam by Trade Groups

Trade Groups	All Candidates Taking The Exam			Candidates Who Passed		Candidates Who Failed	
	Number of Candidates	Average Mark	Failure Rate	Number	Average Mark	Number	Average Mark
Electricians	61	51.0	65.6	21	67.8	40	42.0
M.V.R.	35	33.0	82.9	6	62.0	29	28.0
Plumbers	21	40.0	95.2	1	67.0	20	38.0
Steamfitters	10	50.8	90.0	1	60.0	9	49.5
Sheet Metal Workers	6	57.8	33.3	4	62.2	2	47.0

Comparison of the Candidates' Performance on the C. of Q. Examination Written Prior to Language Training with their Performance on this Exam After Language Training

For 54 trainees, 42.5 per cent of the total, it was possible to undertake a comparison of the C. of Q. Exam results before and after language training was taken[5]. All the candidates in this group had written the C. of Q. Exam at least once before training and failed, and 22 of these 54 candidates had written the exam a second time and failed again. In general, the results on the exams taken prior to the special English course were poor with average marks far below the pass mark of 60 per cent (see Table 2). On the first pre-training exam, an average mark of 34.2 per cent was obtained. For the 22 candidates who wrote the exam a second time, a slightly better average mark of 38 per cent was achieved.

For these 54 candidates taken together, an average mark of 48.5 per cent was obtained on the C. of Q. Exam written after they had taken the English language course and their failure rate was 74 per cent. These results are extremely poor

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5. The records on previous exam history of candidates are quite poor and, thus, there is quite a strong possibility that this figure does not include all candidates who tried the C. of Q. Exam prior to their language training.

TABLE 2

Comparison of Candidates' Performance on
C. of Q. Exam Before and After
Language Training

Trade Group	Candidates Who Failed Pre-Training Exam Once			Candidates Who Failed Pre-Training Exam Twice				All Candidates			Failure Rate on Post-Training Exam
	Number	Average Mark		Number	Average Mark			Number	Average Mark		
		Pre-Training Exam	Post-Training Exam		First Exam	Second Exam	Post-Training Exam		1st Pre-Training Exam	Post-Training Exam	
Electricians	10	40.7	52.0	16	39.3	39.0	52.1	26	39.8	52.1	65.3
M.V.R.	15	27.8	43.0	6	30.0	35.6	39.0	21	28.4	41.8	85.0
Plumbers	3	25.3	47.3	-	-	-	-	3	25.3	47.3	100.0
Steamfitters	1	32.0	60.0	-	-	-	-	1	32.0	60.0	-
Sheet Metal Workers	3	35.3	61.0	-	-	-	-	3	35.3	61.0	33.3
All Candidates	32	32.4	48.4	22	36.7	38.0	48.5	54	34.2	48.5	74.0

and suggest that, in general, inadequate trade knowledge may be the fundamental stumbling block that immigrant tradesmen must overcome.

An analysis by trade group of those candidates who tried the C. of Q. Exam at least once before taking the English language course also suggests that the latter is not a panacea. For example, Electricians obtained an average mark of 52.1 per cent on the C. of Q. Exam taken after English language training. This represented an improvement of 12.3 per cent over the average mark of 39.8 per cent achieved on the C. of Q. Exam written before taking a special English language course (see Table 2). M.V.R. obtained an average mark of 28.4 per cent on their first C. of Q. Exam and the average increased to 41.8 per cent on the post-English language training C. of Q. Exam; but an additional 18.2 per cent is required in order to barely make the grade. The other trade groups cannot be analyzed because of the small number of candidates involved (7 trainees and 3 trade groups)[6].

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6. While additional detailed analysis on this aspect is not possible, it is interesting to note that those electricians who passed the post-training exam had an average of 66.6 per cent as compared with 44.6 per cent at the first writing. Electricians who failed the post-training exam improved their average mark only by 7.2 per cent as compared with the results of the first exam (37.2 per cent and 44.4 per cent respectively). This seems to indicate that for many immigrant tradesmen the knowledge of the trade is poor from the point of view of Canadain standards.

Influence of Foreign Work Experienced on Performance on C. of Q. Exam

In Table 3 average marks and failure rates on the post-English language training C. of Q. Exam are shown for 116 candidates where information on number of years of foreign work experience was available. Because of the limitations imposed by the records and the limited number of observations it was necessary to use two broad categories. The categories employed are "four years or less of foreign work experience" and "over four years of foreign work experience". Admittedly, this analysis is very crude, but it does provide some indication that a candidate's statement on his work experience in country of origin is of little value as a guide.

Overall, for the 116 candidates in question the failure rate on the C. of Q. Exam was 78.4 per cent. The failure rate for those with more than 4 years of foreign work experience was slightly lower, 74.6 per cent, while the failure rate for candidates with 4 years or less of foreign work experience was slightly higher than the average 83.0 per cent. Similarly, there was little difference between these two groups when average marks on the C. of Q. Exam were compared. These results suggest that it would be very dangerous to use statements on previous work history in country of origin as a measure of trade knowledge for immigrant tradesmen.

TABLE 3

Performance on the C. of Q. Exam After Special English Language Training by Years of Foreign Work Experience

Years of Foreign Work Experience	No. of Candidates	No. of Failures	Failure Rate	Av. mark on C. of Q. Exam
1 to 4 years	53	44	83.0	43.7
Over 4 years	63	47	74.6	46.1
TOTAL	116	91	78.4	45.0

Effect of Schooling on Performance

To determine whether schooling and additional technical training affects performance on the exam, the trainees were grouped by level of schooling and average marks. Failure rates on the C. of Q. Exam were computed for each group (see Table 4). In general, the data reveals a positive relationship between the level of schooling and average exam mark. Candidates with Grade 7 or less obtained an average mark of 43 per cent; those with Grade 9 achieved an average mark of 48 per cent; and the average mark for candidates with Grade 10 was 52 per cent. Conversely, the failure rate decreases as the level of schooling rises. It should be noted that, in spite of the fact that the whole pattern is quite consistent and better results are associated with a higher level of education in every case, the average mark in each group is still far from meeting the minimum Ontario standard.

The last two rows (5 and 6) in Table 4 group the candidates for whom there is a record of taking apprenticeship or some type of technical training at any time in addition to their academic schooling. Again, candidates with more technical training achieve slightly better results, but,

in this case, the difference is not large enough to permit any meaningful conclusion to be drawn.

This overall analysis of average marks and failure rates on the C. of Q. Exam for candidates who had taken the special English language training programme is not very encouraging. Also, the positive relationship between average mark on the C. of Q. Exam and such variables as years of experience and level of schooling lead one to speculate that the fundamental problem may be an inadequate knowledge of the trade rather than an inability to write the exam because of an inadequate knowledge of basic English or trade terminology. In the next two parts of the paper, an attempt is made to unravel this problem.

TABLE 4

Results on C. of Q. Exam
By Level of Schooling Attained

Grade Attained	(a) Total Number of Candidates	(b) Average of Exam Marks	(c) Number of Candidates who Failed	(d) Failure Rate (c) : (a) x 100
Grade 7 or less	26	43	23	88.4
Grade 8	29	44	22	75.8
Grade 9	19	48	12	63.1
Grade 10 or more	26	52	16	61.5
Academic Schooling plus technical training				
3 years or less	47	46.0	33	70.2
4 years or more	46	46.8	31	67.3

INFLUENCE OF THE SPECIAL ENGLISH LANGUAGE TRAINING PROGRAM ON PERFORMANCE ON THE C. OF Q. EXAM

In this section of the paper an analysis of the C. of Q. Exam results with respect to a candidate's knowledge of English is undertaken to provide some assessment of whether the solution to high failure rates among immigrant tradesmen is to provide an opportunity for them to up-grade their English and learn trade terminology or whether the key problem is inadequate trade knowledge and, therefore, skill up-grading is the answer. Unfortunately, because of several information gaps definitive conclusions and strong guide posts for future policy cannot be drawn from the analysis. To be more specific, the type of analysis undertaken in this section has been conditioned by the following restraints:

a) According to the original procedure set down for the pilot project, in order to be eligible for the trade terminology part of the course a candidate had to achieve a unit 10 standing in the initial basic

English part of the course[7]. However, in practice this rule never came into effect and all candidates, regardless of their standing in basic English, were allowed to continue the program.

b) No formal evaluation of the students' performance on the second phase of the course (trade terminology) was made. The only source of information on this aspect is the teachers' brief comments describing the candidates as excellent, good, fair or poor. Also, this classification is available only for 77 candidates.

The first point noted above has made it difficult to do a truly meaningful analysis in this section, and because of the second problem, (b), it was not possible to make any vigorous analysis of the C. of Q. Exam results with respect to a candidate's knowledge of English trade terminology. In an attempt to

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7. The International Institute of Metropolitan Toronto employs the "unit" instead of the "grade" system. The unit scale ranges from 1 to 20.

circumvent the latter it was necessary to compare a candidate's mark on the C. of Q. Exam with whether the instructor thought his knowledge of trade terminology was excellent, good, fair or poor.

Performance on the First Phase of the Course (Basic English) Related to C. of Q. Exam Results

Data on performance on the C. of Q. Exam in relation to a candidate's standing in the first phase of the course (basic English) is presented in Table 5. The candidates were grouped into three categories:

a) better than average candidates with a mark in English of 75 per cent or more

b) average candidates with a mark in English between 50 and 74 per cent

c) below average candidates with a mark in English under 50 per cent.

Assuming that inadequate knowledge of English was the key problem, then, one would expect a definite improvement in a candidate's performance on the C. of Q. Exam as his proficiency in English increased; but the data lend little support to this hypothesis. Overall, candidates with a mark under 50 per cent in English achieved a mark of 43 per cent on the C. of Q. Exam.

TABLE 5

Performance in English related to
C. of Q. Exam Results by Trade Groups

Trade Group	Mark in English	No. of Candidates	Average Mark on C. of Q. Exam	No. of Failures	Failure Rate
All Trade Groups	Less than 50%	55	43.0	46	83.6
	50 - 74%	43	45.0	21	48.8
	75 - 100%	12	62.0	6	50.0
Electricians	Less than 50%	23	47.0	17	73.9
	50 - 74%	17	45.0	11	64.7
	75 - 100%	9	65.0	3	33.3
M.V.R.	Less than 50%	20	40.0	17	85.0
	50 - 74%	14	41.0	11	78.0
	75 - 100%	-	-	-	-

As one moves to those who obtained between 50 and 74 per cent in English the average mark on the C. of Q. Exam rises only by two points to 45 per cent. Not until the category"75 per cent or more in English"is reached is there any substantial evidence of marked improvement. For this group the average mark on the C. of Q. Exam was 62 per cent. Also, for two trade groups that could be examined separately - Electricians and M.V.R. - the same pattern held.

On the other hand, the failure rate does fall as proficiency in English increases; but, again, the results are not too encouraging. For example, even for those candidates with 75 per cent or more on the basic English exam, 50 per cent failed.

To investigate the problem in more detail the candidates'C. of Q. Exam results were cross-classified by mark obtained in the basic English part of the course and level of education. However, because of the limited number of observations this was attempted using only two categories of marks in basic English. These were "less than 50 per cent" and "50 - 74 per cent" (see Table 6). At any given level of proficiency in English there is a tendency for average mark

TABLE 6

Performance on C. of Q. Exam By
Level of Schooling and Marks
in Basic English

Grade Attained	Marks in Basic English			
	Less than 50%		50 - 74%	
	No. of Candidates	Average Mark C. of Q. Exam	No. of Candidates	Average Mark C. of Q. Exam
Grade 7 or less	14	42.0	10	43.1
Grade 8	14	40.2	11	47.4
Grade 9	8	52.7	6	48.3
Grade 10 or more	9	43.5	6	55.0

obtained on the C. of Q. Exam to rise as level of education increases.

These statistics are highly suggestive and raise the possibility that performance on the C. of Q. Exam may be more closely related to a candidate's level of education than to proficiency in English. However, a more comprehensive evaluation would be required to precisely determine the relative importance of these factors.

In Table 7 performance on the final C. of Q. Exam is related to the candidates' rating on the trade terminology part of the English language course. The average marks on the C. of Q. Exam were very low for those with a "poor" or "fair" rating in trade terminology and, conversely, the failure rates were very high: 95.6 and 100.0 per cent. Even for those candidates who received a "good" rating in trade terminology, the results were disappointing. The average mark on the C. of Q. Exam for this group was 53.3 per cent and over one-half of them failed. Only among those candidates who were judged to have an "excellent knowledge"of trade terminology were the results favourable. These candidates obtained an average mark of 65 per cent on the C. of Q. Exam and only one-quarter failed. Again, these results cause one to speculate that trade knowledge may be an important problem.

TABLE 7

Knowledge of English Trade Terminology as a Predictor of Candidate's Success on the C. of Q. Exam

Performance on English Trade Terminology Course	No. of Candidates	Average Mark on C. of Q. Exam	No. of Failures	Failure Rate
Excellent	12	65.0	3	25.0
Good	30	53.3	16	53.3
Fair	12	39.0	12	100.0
Poor	23	38.5	22	95.6

ANALYSIS OF C. OF Q. EXAM RESULTS BY EXAM SECTION

As mentioned earlier, for several trade groups there were a large enough number of candidates to permit a review of results achieved on each section of the C. of Q. Exam. This approach offers a better opportunity of disentangling knowledge of English and trade knowledge as factors underlying the high failure rate among immigrant tradesmen on the C. of Q. Exam.

Electricians

For Electricians the C. of Q. Exam questions were classified into three categories: code, theory and trade knowledge. Also, each category was marked separately with 100 per cent being the highest possible mark for any one category. In Table 8 the average marks achieved in these three areas are cross-classified by the total final mark received on the C. of Q. Exam.

For this analysis the section on code may be quite important. It groups together all the exam questions that can be answered by using the Ontario Hydro Code Book which candidates can refer to when writing the C. of Q. Exam. Thirty per

cent of all the exam questions can be answered by referring to this Code Book. As shown in Table 8, Electricians who passed the C. of Q. Exam did best on the Code Section of the Exam with an average mark of 72 per cent. However, these candidates also did well in Theory, 70 per cent and had their lowest mark, 60 per cent, on the trade knowledge section. Electricians who obtained an average mark in the 45 to less than 60 per cent range on the C. of Q. Exam had an average mark of 55 per cent on the Code Section, but the average mark fell to 43 and 48 per cent on Theory and Trade Knowledge respectively. Candidates with a final mark on the C. of Q. Exam below 45 per cent performed very poorly on every section of the exam.

In general, the low marks obtained on the Trade Knowledge Section suggests that knowledge of the trade is poor. This refers to all candidates since even those who passed the C. of Q. Exam barely made the grade on this section. Also those candidates who failed the exam showed a serious lack of familiarity with Code Book specifications.

In an attempt to shed more light on the problem a candidate's mark on the Code Section of the C. of Q. Exam was

TABLE 8

Performance on the C. of Q. Exam By Exam Section for Electricians

Average Mark on C. of Q. Exam	Average Mark by Exam Section		
	Code	Theory	Trade Knowledge
60% or more	72	70	60
45% less than 60%	55	43	48
Less than 45%	35	31	39
TOTAL	53	48	49

cross-classified by his mark on the basic English exam. The assumption underlying this procedure is that a candidate's ability to use the Code Book is determined mainly by his knowledge of English. The data are presented in Table 9.

TABLE 9

Performance in Basic English Related to Results on the Code Section of the C. of Q. Exam for Electricians

Mark in Basic English	No. of Candidates	Average Mark on Code Section
75% and over	9	75
50 - 74%	16	47
Less than 50%	23	53

Overall, the results on the Code Section of the C. of Q. Exam were poor for candidates who had obtained less than 75 per cent in basic English. Also, those with less than 50 per cent in basic English actually had a higher average mark on the Code Section than those with 50 to 74 per cent in basic English: 53 per cent compared with 47 per cent. Only for those candidates with 75 per cent or more in basic English was the average mark on the Code Section acceptable. While no strong conclusions can be drawn from this analysis, the data lend some support to the suspicion that trade knowledge may be a more important problem than knowledge of English for immigrant tradesmen, especially since those candidates who obtained between 50 and 74 per cent in basic English were, on average, unable to effectively use the Code Book.

Next, an attempt to determine the impact of an Electrician's level of schooling on his performance on the Theory Section of the C. of Q. Exam was undertaken (see Table 10). As one moves from candidates with Grade 7 or less to those with Grade 8, there is a definite increase in the average mark (41.7 to 48.5) and a marked drop in the failure rate from 92.8 to 66.6. There is little difference at the next level of education (Grade 9). In fact, the failure rate for those with

Grade 9 is higher than at the Grade 8 level. However, for candidates with grade 10 or more, again, there is a great improvement. The average mark on theory rises to 52.0% and the failure rate on this section of the exam falls to 53.3%. Again, while not conclusive, these data suggest that education and training may be as important as knowledge of English with respect to an explanation of high failure rates among immigrant tradesmen.

TABLE 10

Performance on Theory Section of the C. of Q. Exam and Level of Education for Electricians

Grade Attained	No. of Candidates	Average Mark on Theory Section	Failure Rate [1]
Grade 7 or less	14	41.7	92.8
Grade 8	12	48.5	66.6
Grade 9	12	47.3	75.0
Grade 10 or more	15	52.0	53.3

1. The failure rate here is the percentage of candidates that failed that section alone.

Motor Vehicle Repairmen

A brief analysis of the performance of auto mechanics, the second most important trade group in the pilot project, by exam section may also be of some value. The C. of Q. Exam for this trade is divided into seven sections and each section is given a separate mark (see Table 11).

TABLE 11

Motor Vehicle Repair Examination

Section	Description	Possible Score
1	Engines	29
2	Cooling Systems	13
3	Fuel Systems	26
4	Power Trains	16
5	Brakes & Wheels	17
6	Power Steering & Frame	10
7	Electrical	24
	TOTAL	135

In Table 12 results by exam section are presented for all candidates with a breakdown into "passed" (60 per cent or more) and "failed" (less than 60 per cent) categories. Section 6, Power Steering, was the most troublesome for all candidates. The overall average mark was only 31% and even candidates who passed the exam had an unimpressive average mark of 46%. However, this should not be too surprising since 5 out of 10 questions on this section are on power steering and apparently immigrant auto mechanics are not familiar with them. Section 7, Electrical, also presented problems; but it should be noted that this section is difficult for all candidates including Canadian tradesmen and 60% on this section is considered as a good mark.

Candidates who passed the exam found Section 4, Power Trains, the easiest (their average mark is 78%) Also, the average mark rose slightly in this section for all candidates compared with the average marks on all other sections. Generally speaking, with the exception of 6 candidates who passed the exam, the results are very poor on every section.

Plumbers

Some detailed analysis of performance on the C. of Q. exam can also be presented for plumbers. Table 13

TABLE 12

Performance by C. of Q. Exam Section
for Motor Vehicle Repairmen

C. of Q. Exam Results by Groups	No. of Candidates	Average Marks by Section*						
		Section 1	Section 2	Section 3	Section 4	Section 5	Section 6	Section 7
60% or more	6	62	66	65	78	62	46	54
Less than 60%	25	35	35	28	39	37	27	32
All Candidates	31	41	41	35	47	41	31	37

* The average mark under each section refers to the mark obtained by candidates on that section alone.

indicates the exam Sections with the possible score for each section. Also, the table shows the average marks received by candidates and indicates what percentage of each Section can be answered from the Code Book. By knowing how to use his Code Book, a candidate can obtain as much as 37% on the examination.

The average marks were generally very low for every Section. This is not surprising since all but one of the candidates in the group failed the exam. Section 6 on Rural Water Supply Systems was the most difficult for all the candidates and the average mark for the group is only 19%. It should be noted here that this Section might be troublesome for plumbers from urban areas who have never worked in rural areas.

The highest average mark (47% which is still very low) was registered for Section 2. From the language point of view, this was an important Section since all questions except one could be answered by simply looking up the answer in the Code Book. On Section 4, where 62 per cent of the questions could be answered using the Code Book the performance was also poor. The average mark for

this section was 45 per cent.

While average marks were higher on those Sections containing the largest number of questions that could be answered using the Code Book, still, the performance was much below a minimum pass level. Again, these results raise the suspicion that trade knowledge according to Ontario Standards may be just as important a problem as knowledge of English. However, only through further research could this contention be adequately tested.

TABLE 13

Plumbing Examination
(18 candidates)

Section	Description	Possible Score	Questions answerable from Code Book (%)	Average Mark* (in %)
1	Pipe-Tubing-Fitting	32	22	38
2	Sewers-Drains-Stacks-Wastes	17	94	47
3	Septic Tanks	6	0	28
4	Venting	29	62	45
5	Water Supply Systems	16	19	31
6	Rural Water Supply Systems	9	11	19
7	Isometrics and Drawing	14	0	31
8	Special Equipment and Appliances	14	36	27
	TOTAL	135		

* Average mark refers to the mark obtained by candidates on that section alone.

APPENDIX

DEMOGRAPHIC CHARACTERISTICS OF CANDIDATES

TABLE A

Candidates Who Took the C. of Q. Exam
and Dropouts by Trade Group

Trade Group	Total No. of Candidates	Candidates taking the C. of Q. Exam		Drop-Outs	
		No.	% of Total	No. of Candidates	% of Total
Electricians	97	61	62.8	36	37.2
M.V.R.	55	35	63.6	20	36.4
Plumbers	30	21	70.0	9	30.0
Steamfitters	16	10	62.5	6	37.5
Sheet Metal Workers	7	6	85.7	1	14.3
TOTAL	205	133	64.9	72	35.1

TABLE B

Candidates by Their Country of Origin
and Trade Groups

Country of Origin	Electricians		M.V.R.		Plumbers		Steamfitters		Sheet Metal Workers		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Italy	28	28.9	26	47.3	11	36.7	8	50.0	3	42.9	76	37.1
Greece	24	24.7	10	18.2	8	26.7	1	6.2	0	00.0	43	21.0
Yugoslavia	13	13.4	8	14.5	4	13.3	4	25.0	3	42.9	32	15.6
Others [1]	32	33.0	11	20.0	6	20.0	2	12.6	0	00.0	51	24.9
D.K. [2]	0	00.0	0	00.0	1	3.3	1	6.2	1	14.2	3	1.4
TOTAL	97	100.0	55	100.0	30	100.0	16	100.0	7	100.0	205	100.0

1. "Others" include the countries listed as follows: Portugal, Hungary, Israel, Spain, Poland, Pakistan, Jordan, Germany, Cyprus, Romania, Turkey, Holland, Sweden, Morocco, Egypt, Switzerland, Brazil, Czechoslovakia, Austria, Finland, U.S.S.R. (Lithuania, Ukraine).

2. D.K. - no information available.

TABLE C

Candidates' Average Age by Trade Groups

Trade Group	Average Age		
	Candidates	Passed & Failed	Drop-outs
Electricians	29.6	29.4	29.9
M.V.R.	28.6	28.3	29.1
Plumbers	31.2	29.8	30.7
Steamfitters	32.4	33.7	27.7
Sheet Metal Workers	29.3	27.8	24.0
TOTAL	29.7	29.8	29.2

TABLE D

Marital Status of Candidates

Trade Group	All Candidates							
	Married		Single		DK's		Total	
	No.	%	No.	%	No.	%	No.	%
Electricians	54	55.7	39	40.2	4	4.1	97	100.0
M.V.R.	27	49.1	28	50.9	0	0.0	55	100.0
Plumbers	4	13.3	2	6.7	24	80.0	30	100.0
Steamfitters	3	18.8	2	12.5	11	68.7	16	100.0
Sheet Metal Workers	2	28.6	0	0.0	5	71.4	7	100.0
TOTAL	90	43.9	71	34.6	44	21.5	205	100.0

DK - no information available.

TABLE E

Candidates By Number of Dependants

No. of Dependants	All Candidates	
	No.	%
None	69	33.7
One	31	15.0
Two	25	12.2
Three	21	10.2
Four	11	5.4
Five or more	3	1.5
D.K.	45	22.0
TOTAL	205	100.0

TABLE F

Candidates By Level of Schooling

Last Grade Attained	Candidates taking C. of Q. Exam		Drop-Outs	
	No.	%	No.	%
Grade 7 or less	26	26.0	22	36.0
Grade 8	29	29.0	18	29.5
Grade 9	19	19.0	7	11.5
Grade 10 or more	26	26.0	14	23.0
TOTAL	100	100.0	61	100.0
Academic Schooling plus Some Type of Technical Training				
3 years or less	47	50.5	31	47.8
4 years or more	46	49.5	34	52.2
TOTAL	93	100.0	65	100.0

TABLE G

Candidates By Foreign and Canadian Work Experience

Foreign Work Experience (Years)	Added to	Years of Experience in Canada	Candidates taking the C. of Q. Exam		Drop-Outs	
			No.	%	No.	%
1 - 4 years	+	1 year or less	29	25.0	10	27.7
	+	more than 1 year	17	14.7	6	16.7
Over 4 years	+	1 year or less	24	20.7	14	38.9
	+	more than 1 year	16	13.8	6	16.7
1 - 4 years	+	0*	7	6.0	0	0.0
Over 4 years	+	0*	23	19.8	0	0.0
TOTAL			116	100.0	36	100.0

* No records on Canadian work experience.